

WHAT IS CLAIMED IS:

1 1. A rotary shaft axial elongation measuring method for
2 measuring an axial elongation of a rotary shaft,
3 comprising the steps of:

4 providing a reference mark and a measuring mark on a
5 rotational surface of said rotary shaft, said measuring mark
6 being arranged inclinedly relative to an axial direction of
7 said rotary shaft;

8 arranging a sensor fixedly so as to oppose the
9 rotational surface of said rotary shaft, said sensor
10 generating pulses upon passing of said marks following a
11 rotation of said rotary shaft; and

12 measuring the axial elongation of said rotary shaft from
13 a change in an interval of the pulses generated by said sensor
14 upon passing of said reference mark and measuring mark.

1 2. A rotary shaft axial elongation measuring device for
2 measuring an axial elongation of a rotary shaft, comprising:

3 a reference mark and a measuring mark provided on a
4 rotational surface of said rotary shaft, said measuring mark
5 being arranged inclinedly relative to an axial direction of
6 said rotary shaft;

7 a sensor arranged fixedly so as to oppose the rotational

8 surface of said rotary shaft, said sensor generating pulses
9 upon passing of said marks following a rotation of said rotary
10 shaft; and

11 a data processing part for measuring the axial
12 elongation of said rotary shaft from a change in an interval
13 of the pulses generated by said sensor upon passing of said
14 reference mark and measuring mark.

1 3. A rotary shaft axial elongation measuring device as
2 claimed in Claim 2, wherein said reference mark and measuring
3 mark are two marks provided such that an interval between them
4 in a circumferential direction of said rotary shaft differs
5 according to an axial directional position of said rotary
6 shaft.

1 4. A rotary shaft axial elongation measuring device as
2 claimed in Claim 3, wherein said two marks are two grooves
3 provided in a turned V shape.

1 5. A rotary shaft axial elongation measuring device as
2 claimed in Claim 3, wherein said two marks are two wire
3 members fitted in a turned V shape.

1 6. A rotary shaft axial elongation measuring device as

2 claimed in Claim 2 wherein said measuring mark is a groove
3 provided in a spiral shape.

1 7. A rotary shaft axial elongation measuring device as
2 claimed in Claim 2, wherein said measuring mark is a wire
3 member fitted in a spiral shape.

1 8. A rotary shaft axial elongation measuring device as
2 claimed in any one of Claims 2 to 7, wherein said sensor is
3 any one of a capacitance type gap sensor, an eddy current gap
4 sensor and a photoelectric sensor.